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Karaoke in the Digital Audio Lab
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Abstract

Using play speed adjustments, a synchronized lyrics feature, and a plug-in that automatically cleans the lead voice from the audio channels, one can create inexpensive Karaoke exercises from foreign language pop songs (DRM issues will be addressed). Using a Digital Audio Lab (Sanako Lab 300), one can provide students with a choir mix as well as individual performance recordings for their language portfolio. Included are an introduction to a set of software tools for producing Karaoke sessions in the language lab and teaching samples of Karaoke-based language-learning activities from our foreign language programs.

Introduction

Language learning pedagogy has highly valued singing for a long time.[1] Singing affords an opportunity for playful language practice, often with samples that themselves play with the target language in a way that is helpful to the language learner (prosody, phonetics). Song lyrics often contain an amount of target language text that is manageable even in beginning classes. Being popular (sometimes trivial) lyrics, they are not as dark as poetry can be. Popular music and its surrounding culture are attractive to the student audience and form a window into the target language and culture that, for a change, the instructor does not need to push open. I am happy about almost any Germanic cultural phenomenon that students bring to me as long as it does not involve *Bier* and *Bratwurst*. German pop music is where my students have proven me ignorant.

So why not use *Ich will* by the controversial pop band *Rammstein* as an example of how to use modal verbs, or employ the *Rote Rosen*-Adaptation by *Die toten Hosen* as an introduction to the (more distant but for Karaoke actually more manageable) original by Hildegard Knef? Ballads have a discernible story line which makes them more accessible to the beginning language learner, even if they get rather text-heavy, as does Reinhard Mey's *Was in der Zeitung steht* – a song that serves as capstone in the *Deutsch, na klar!*- program and as primary example in the following paragraphs. Songs that play heavily with the sound of language can also be put to good use. Identifying and mimicking simple rhymes even in a ballad as sober as Reinhard Mey's *Was in der Zeitung steht* can be great fun for beginning language learners – and instructional no less: The fact that in German "U-Bahn-Station" rhymes with "schon" helps disassociating the cognate from the English pronunciation.

Towards Karaoke

Karaoke-exercises cap the foreign language singing experience.[2] How can they be implemented in a digital language lab environment (a Sanako Lab 300 in our case)? Given a song, I use a number of exercises to lead students from reception to comprehension and production. First, we listen to the song one or two times while each student is assigned a section of the lyrics from which he or she must look up a number of vocabulary words of his/her choice. To do this, we use the *File Launch* feature of Sanako's Lab 300 to push an MS-Word file out to the students' computers. This file containing the song lyrics is based on a lookup template which links any text to a number of search engines, including dictionaries, encyclopedias and Google's image search (see Figure: Language Lab Lookup

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[1] Medina (1991); Wilcox (1995); Iudin-Nelson (1997); Somers (2000).
[2] Motoyoshi (1991); Greenlees (1992), (1994); Mathelart (2002).

Template with Song Lyrics on Students' Computers).
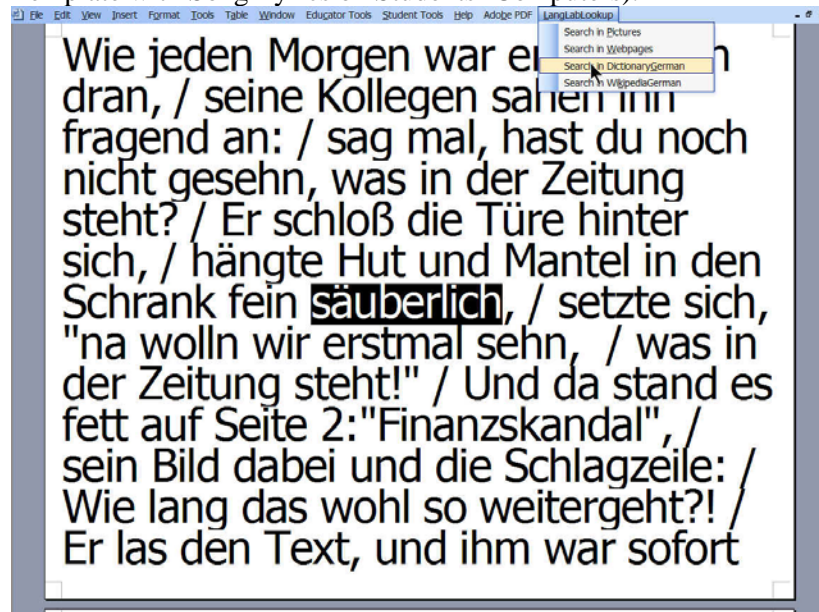

Figure 1: Language Lab Lookup Template with Song Lyrics on Students' Computers

To become more confident in producing the song's lyrics, students continue with a number of vocabulary, grammar and pronunciation exercises. Once again, we launch an MS-Word file on the students' computers with the song lyrics. This time it is based on a fill-in-the-blank-exercise template that enables the instructor to create an interactive MS-Word form from a slightly marked-up text. When the student tabs into a form field to enter data, the template displays a hint for this form field. When the student tabs out of the form field, the template will provide, depending on the student's input, immediate positive or negative feedback. The data collection of the templates is designed to extend the *File Launch*/*Copy* and *File Collec*t feature, one of the various ways (*Response Recording*, *Response Analyzing*) to gather test data in a Sanako Lab 300 environment. When the student (or the instructor, after collecting the students' documents through Sanako Lab 300) opens or closes the exercise file, the template displays a summary of the questions and responses, including a list of incorrect answers (see Figure: Results Summary).
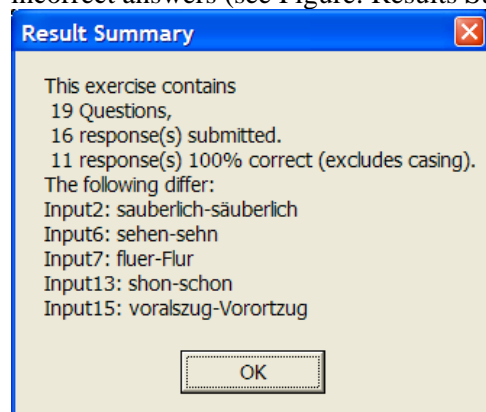

Figure 2: Results Summary

These exercises usually include a listening comprehension component (when we replay the song, with interruptions, to complete the exercise) and an interactive component (when we *Group-conference* with or *Pair* students in Sanako Lab 300). Common exercise routines include filling in new vocabulary or verb forms (e.g. inflection endings). In Karaoke-classes, it is especially productive to have students focus on language features specific to song lyrics, such as finding rhymes (see Figure: Quiz with form fields).

Figure 3: Quiz with Form Fields

All of these templates are visually designed to extend the Sanako Lab 300 feature called *Remote PC during Automonitor*.[3] This feature provides the instructor with a small-sized image of the students' computer screens while automatically cycling through the student group (including their audio). Such automation – which can be paused and resumed with the click of a button – has proven to be a very convenient feature for instructor-student-interaction in the lab. However, due to the small size of the student screen window, regular-sized fonts are not legible for the instructor.[4] The templates (which require only VBA support and a Macro Security Level set to Medium)[5] have been designed to default to a large font and font-face optimized for small display sizes. They also employ other means to optimize the use of the screen real estate (full screen, automatic line wrapping etc.), without preventing other windows (including the Sanako Media Assistant) from coming to the foreground. While the built-in intercom feature allows the instructor to listen to what the student(s) are doing, this instructor viewable 'notepad' provides a small window to past activity. This greatly facilitates monitoring a larger number of students, whether during exams or regular note-taking, especially vocabulary acquisition, information-gap exercises, group work and electronic portfolio projects (see Figure: Sanako Lab 300 Automonitor).

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[3] They can also serve to enhance the feature *Thumbnail View of Group* and *Model Student*, especially by enabling each student to view all other students 'notepads' simultaneously on an LCD-projector screen.

[4] Larger screen views are available in the Sanako software, but require more resources to access. While computer resources (screen real estate, network load) will keep growing rapidly, instructor resources will remain scarce. A software solution that enables auto-cycling of larger screen views would be welcome.

[5] There is nothing in this VBA application (which runs in MS-Word) that could not be implemented in a web application. There are, however, several features of the VBA application that are not as readily available in web applications: A more mature development and delivery environment, with more sophisticated services, especially for foreign language text editing (character input, proofing tools, text-to-speech support), richer MS-Windows vs. flat web controls, higher user familiarity. Compared with exercise creation specifically in Blackboard, our course delivery platform, the MS-Word-based exercises seem to be easier and faster for instructors to author (document-basis, simple format, no upload), faster for the students to take (students do not have to wait for postbacks before receiving feedback, but data still gets collected at the end) and better integrated into the digital audio lab environment where we have a cluster of fast "thick clients" connected via intranet and controlled by a central workstation.

Figure 4: Sanako Lab 300 Automonitor

Subsequent pronunciation exercises, using the Sanako Lab 300's *Response Recording* feature, can range from simple repeat-after-model drills (the instructor may read the lyrics or intersperse the actual song with silence for student repetition), to a student choir of the chorus following the lead singer, or a competition (i.e., boys against girls) that divides up rhyming lines in order to achieve an echo effect. Windows Media Player (WMP)[6] has included play speed options for a long time now – a feature which can considerably widen the arsenal of songs which may be used in beginner's classes. Simply go to menu *View* / *Enhancements* / *Show Enhancements*, and check *Play speed settings*.

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[6] These Karaoke exercises were developed using our Sanako 5 installation. We have since upgraded to Sanako 6, which also offers play speed settings in the Sanako Media Assistant (Go to Top Menu: *View* / *Variable Speed Playback* to open a pane with a play speed slider, cf. SANAKO Media Assistant v. 6.0 User Guide - English, 6), but still not in the Media File Program Source Controls (cf. SANAKO Lab 300 v. 6.0 User Guide - English , 46) that the instructor uses to multicast to the students.

Synchronized Lyrics

To facilitate Karaoke, add subtitles to audio.[7] To add *Synchronized Lyrics* in WMP 10,

- I drop a song on the *Now Playing* pane (Menu: *View* / *Now Playing Options* / *Show Playlist*).
- Right-click to access the context menu of the [*Song title]* / *Advanced Tag Editor* / Tab: *Lyrics* / Button: *Synchronized Lyrics* (see Figure: Subtitling in WMP 10).
- It is best to break lyrics up into lines, the shorter, the better. Then paste the text lines into *Value* fields. Start times will be added automatically, beginning at zero seconds and advancing by 1 second for each line.
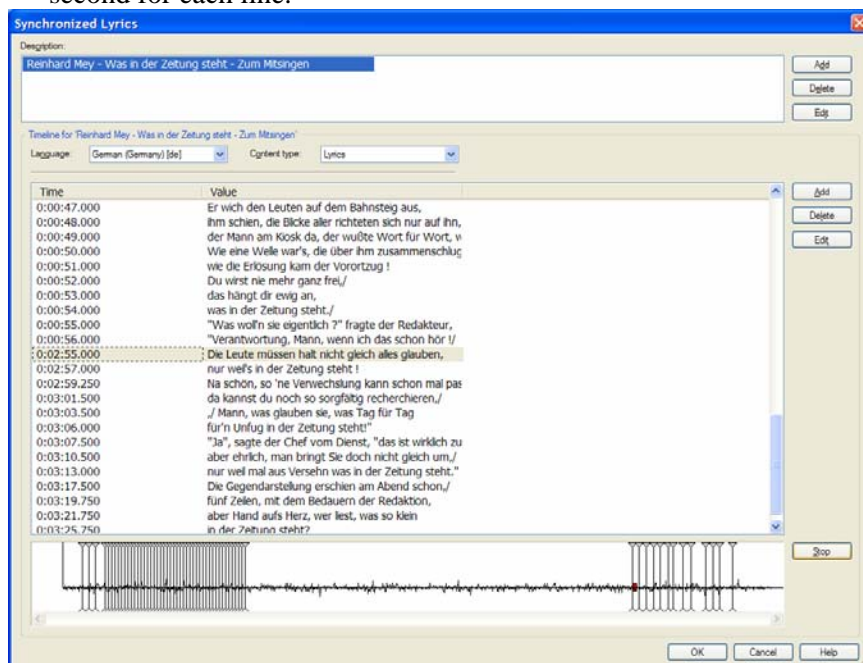

Figure 5: Subtitling in WMP 10

The application will also add a sliding marker for each line in the correct relative position on the timeline at the bottom of the window. One can adjust the time when a subtitle will appear, by dragging the sliding markers in the bottom pane. Typically, I start from the end of the song. For ease of maneuverability, drag the window to maximum size.[8] Start the lines sufficiently early for students to glance over the entire line before they have to sing. Stop the time when the previous line ends and use that as the start time for the next. Alternatively, one can also manually edit the time data in the corresponding field of the central pane. Make sure to observe the time format that WMP10 expects. A screen movie entitled *subtitling.wmv* and folder *Subtitling Exercise* on our Lab website provide hands-on training to our faculty.[9] When finished, press *OK*, *Apply*, *OK*, and go to menu *File* / *Exit*. Updates are only written to disk on exit, and I recommend frequent exiting and always making a backup copy before continuing to work on a file with synchronized lyrics. To display Synchronized Lyrics in WMP 10, go to Menu: *Play* / *Captions and Subtitles* / *On if available*.

Karaoke Plug-in

A sizable industry revolves around Karaoke, and a number of specialized language learning software offerings[10] have also recently tried to cater to the demand. Language labs short on resources can now 'roll their own' cheaply and effectively using WMP 10. In Creating Karaoke, Windows Media Player

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[7] I no longer allow students to subtitle songs, since issues concerning the interface and timing did not seem to be a good use of class time.

[8] - This seems to be 1024 pixels for the x-axis of the timeline. While the window itself can grow beyond that, the graph of the associated audio stream will not.

[9] Guest access enabled. Browse to http://ut.blackboard.com, click Button: *Login* / Button: *Preview*/ Tab: *Courses* / Textbox: *Course search*: enter "Language Lab" / button *Go*, click on the first match / Menu: *Manuals&Training* / Folder: *Socallt 2006*.

[10] Cf. CALICO Review (2006) (cantare00.htm, critcantonese00.htm, musicspanish00.htm); Shaw (2005).

Style, Stephen Toub demonstrates the programmability of the WMP 9 (and up) Series and its software development kit by writing a Digital Signal Processing (DSP) plug-in for WMP10.[11] "When Windows Media® Player plays an audio file, it constructs an array of bytes representing the stream of amplitude samples and supplies this data to registered DSP plug-ins. A plug-in can then interpret and massage this data however it sees fit, sending the modified data back to the Player". Toub's "massaging" "relies on the fact that in many stereo recordings (at least in popular music) the lead vocal is often mixed approximately equally onto the left and right channels. By canceling out the parts of the channels that are identical," Toub's plug-in can often very effectively "eliminate the lead vocals from the sound".

The effect can be stunning in pop songs, try "Like Humans Do" which comes with Microsoft Windows® XP. Reinhard Mey's chanson can demonstrate the inner workings - and limitations as well: For a short period (around 2:01-2:10), its refrain *Was in der Zeitung steht* is not equally mixed onto the left and right channels, so as to achieve a stereo effect (1 left – 1 center – 1 left – 1 center – 1 right – 1 center – 1 left). Those three instances on the left and right channel survive the "massaging" by the Karaoke DSP very audibly. Bear this limitation in mind and test when looking for songs to use in Karaoke classes.

Digital Rights Management

Audio DSP plug-ins are not compatible with Digital Rights Management (DRM).[12] If one prefers not to use a music store that allows burning music on CD, then ripping the CD for classroom use, one must restrict oneself to music purchased on CD, including that which may accompany his or her textbook. However, an advantage of audio DSP plug-ins is that their post-processing does not need to modify the source file permanently. It is advantageous in teaching and technically possible to maintain those on-the-fly alterations of the DSP by re-recording plug-in output, but this is legally problematic. Sanako Lab 300 enables us to "multicast" the audio to the students (synchronously), by using the program source *Media file,* while playing through WMP. If desired, one can decrease play speed and display subtitles, preferably on an LCD projector screen for all the students to follow. We can later collect their "responses" (voice tracks, recorded either as choir in *Group conference* or as solos) using the *Response Recording* feature (and possibly mix the response in a multitrack sound editor like Adobe Audition®) – all of that without the need for duplication of copyright-protected material.

For song purchases, Apple's iTunes® boasts a relatively liberal DRM policy, including burning rights.[13] The instructor will always be able to transcribe[14] the lyrics of songs he/she has purchased. Song lyrics are also available on many websites, including those of the authors. However, third-party collections created by music fans should be used with caution as they have been under litigation from the music industry for receiving banner advertisement revenue through the traffic those lyrics have generated.[15]

Conclusion

The artistic *a capella* recital of the *Comedian Harmonists* regularly entices my students to demand playing the slowed-down songs "Schneller!" ("Faster!") so that they can attempt to sing along at the authentic speed – an (admittedly) rare occurrence during German speaking exercises. Karaoke strongly encourages students to produce language and, together with the studio atmosphere that the digital language lab can create, helps overcome many language learner inhibitions. Karaoke-based classes produce a tangible result that students like to include in their electronic language learner portfolios - but also provide an opportunity for the instructor to address a target language text

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[11] If the downloadable Microsoft installer file (MSI) fails to complete, use Orca (Q107066 INFO (2004)) to extract the file Karaokemaker.dll (any folder is fine). In WMP 10, go to *Tools* / *Options* / *Plug-ins* / *Category*: *Audio*, click *Add* and point to the file you just saved. In menu *Tools* / *Plug-ins*, *Karaokemaker for Windows Media Player 10* will appear. Before you test it, activate the plug-in with a checkmark.

[12] Cf. Toub, 2004: "DSP plug-ins are disabled when playing protected content".

[13] A comparison can be found at iTunes-Hack (2005).

[14] Micase Soundscriber (1998) provides a useful free transcription tool called.

[15] Cf. Stöcker (2005).

intensively and repeatedly without losing the students' focus. This approach leads to an above average production of target language – even if not always in a communicative or more than imitating manner. In Karaoke-based classes, language learners also show a larger willingness to reflect critically on and refine their target language production – I will have to learn to live with *Rammstein* being a more eagerly emulated cultural model to my students than I am.

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